**Dynamic Player Transfer Value Prediction using AI & Multi-source Data**

**Intern Name:** Famesh Katre

**Internship:** Infosys 6.0

**Duration:** 8 Weeks

**Mentor:** Pranaya mam

# Internship Overview

**Objective:**

* Predict player transfer values using AI models by analyzing multi-source data.
* Learn and apply real-world data analytics and machine learning techniques.

**Tools & Technologies:**

* Python, Pandas, NumPy, scikit-learn, Matplotlib, TensorFlow/Keras
* Git/GitHub
* Agile methodology **Skills Developed:**
* Data preprocessing & cleaning
* Feature engineering & normalization
* Regression and classification modeling
* Hyperparameter tuning
* Collaboration & Agile project workflow

# Problem Statement

* Player transfer values are influenced by multiple factors like performance stats, historical transfers, and market trends.
* Predicting accurate transfer value is challenging due to multi-source data and complex player dynamics.

**Goal:**

* Build a predictive AI model to estimate transfer value for players.

# Data Collection & Preprocessing

**Sources:** Player performance stats, historical transfers, market data

**Steps:**

1. Data cleaning (handling missing values, duplicates)
2. Feature extraction and engineering
3. Data normalization & scaling
4. Train-test split for modeling

**Tools:** Python (Pandas, NumPy, scikit-learn)

# Model Building

* Implemented Regression models (Linear Regression, Random Forest, XGBoost)
* Performed hyperparameter tuning to improve accuracy
* Evaluated models using RMSE, MAE, and R² metrics **Outcome:**
* Best-performing model selected based on accuracy and prediction stability

# Workflow (Week-wise Overview)

**Week 1-2:**

* Understand project requirements and problem domain
* Gather multi-source data **Week 3-4:**
* Data cleaning and preprocessing
* Feature engineering **Week 5-6:**
* Model selection and initial training
* Evaluation using test dataset **Week 7:**
* Hyperparameter tuning & model optimization
* Visualization of results **Week 8:**
* Final model validation
* Documentation and presentation preparation

# Key Technical Learnings

* Learned to handle multi-source datasets effectively
* Built predictive AI models using Python libraries
* Applied data normalization & feature engineering for better accuracy
* Practiced hyperparameter tuning for model optimization
* Improved project management skills in Agile framework

# Challenges & Solutions

**Challenges:**

* Handling inconsistent or missing data
* Balancing multiple features impacting transfer value
* Achieving high prediction accuracy **Solutions:**
* Used advanced data cleaning techniques
* Performed feature scaling & selection
* Iterative model tuning & validation

# Key Takeaways

* Real-world experience in sports analytics & AI modeling
* Hands-on learning in Python, ML libraries, and Git/GitHub
* Understanding of AI project lifecycle in Agile
* Enhanced problem-solving and collaboration skills